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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,406	11/19/2003	Charles Q. Zhan	120 06741US	7240

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EXAMINER	
LE, TOAN M	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/717,406	ZHAN ET AL.	
	Examiner	Art Unit	
	Toan M. Le	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/4/06 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-22 are rejected under 35 U.S.C. 102(a) as being anticipated by "Wavelet-Based Pressure Analysis for Hydraulic Pump Health Diagnosis", Gao et al. (referred hereafter Gao et al.).

Referring to claims 1, 8, and 15, Gao et al. disclose a method; apparatus; a computer program embodied on a computer readable medium and operable to be executed by a processor, the computer program comprising computer readable program code (Abstract); comprising:

decomposing a signal comprising a plurality of process variable measurements into a plurality of resolution levels, the process variable measurements associated with operation of a valve (page 971, 2nd col., 3rd and last paragraphs to page 972, 1st col., 1st and 2nd paragraphs);

grouping the resolution levels into a plurality of groups (page 972, 1st col., 1st paragraph); and

identifying one or more defect indicators for at least some of the resolution levels using the groups, the one or more defect indicators associated with a possible defect in the valve (page 972, 2nd col., 2nd and 3rd paragraphs; page 976, 1st col., 1st paragraph).

As to claims 2, 9, and 16, Gao et al. disclose a method; apparatus; a computer program embodied on a computer readable medium and operable to be executed by a processor, the computer program comprising computer readable program code, wherein:

decomposing the signal comprises performing wavelet decomposition to generate wavelet coefficients at each of the resolution levels (page 971, 2nd col., 3rd and last paragraphs);

grouping the resolution levels comprises grouping the wavelet coefficients into groups (page 972, 1st col., 1st paragraph); and

identifying the one or more defect indicators comprises performing singularity detection using the groups of wavelet coefficients (page 972, 2nd col., 2nd and 3rd paragraphs; page 976, 1st col., 1st paragraph).

As to claims 3, 10, and 17, Gao et al. disclose a method; apparatus; a computer program embodied on a computer readable medium and operable to be executed by a processor, the computer program comprising computer readable program code (page 971, 1st col., 1st, 2nd, and 3rd paragraphs; page 976, 1st col., 1st paragraph).

Referring to claims 4, 11, and 18, Gao et al. disclose a method; apparatus; a computer program embodied on a computer readable medium and operable to be executed by a processor, the computer program comprising computer readable program code, wherein the one or more

defect indicators identify one or more jumps in the process variable measurements (page 971, 2nd col., 2nd paragraph).

As to claim 5, Gao et al. disclose a method, wherein the one or more jumps represent one or more deterministic signal changes where the process variable measurements change by a threshold amount within a given time period (page 969, 2nd col., 1st paragraph; page 971, 2nd col., 2nd paragraph).

Referring to claims 6, 12, and 19, Gao et al. disclose a method; apparatus; a computer program embodied on a computer readable medium and operable to be executed by a processor, the computer program comprising computer readable program code, further comprising:

selecting one of the resolution levels; and

determining a probability of a valve defect based on the defect indicators at the selected resolution level (page 971, 2nd col., 3rd and last paragraphs to page 972, 1st col., 1st and 2nd paragraphs).

Referring to claims 7 and 14, Gao et al. disclose a method; apparatus; a computer program embodied on a computer readable medium and operable to be executed by a processor, the computer program comprising computer readable program code, wherein grouping the resolution levels into the plurality of groups comprises grouping the adjacent three resolution levels into groups, the groups forming overlapping groups where at least some of the resolution levels form part of two or more groups (page 972, 2nd col., 2nd and 3rd paragraphs; figures 4-7).

As to claims 13 and 20, Gao et al. disclose an apparatus; a computer program embodied on a computer readable medium and operable to be executed by a processor, the computer program comprising computer readable program code, wherein the one or more processors are

further collectively operable to generate a second signal and supply the second signal to a valve adjuster, the valve adjuster operable to use the second signal to adjust an opening of the valve (figure 1; pages 970-971, Materials and Methods section; page 976, 1st col., 1st paragraph).

Referring to claims 21-22, Gao et al. disclose a system, comprising:

a valve (figure 1);

a measuring device operable to generate a signal comprising measurements of a process variable associated with operation of the valve;

a controller operable to generate output values for adjusting the valve based on the process variable measurements (pages 970-971, Materials and Methods section); and

a defect detector operable to:

decompose the signal into a plurality of resolution levels (page 971, 2nd col., 3rd and last paragraphs to page 972, 1st col., 1st and 2nd paragraphs);

group the resolution levels into a plurality of groups (page 972, 1st col., 1st paragraph); and

identify one or more defect indicators for at least some of the resolution levels using the groups, the one or more defect indicators associated with a possible defect in the valve, wherein the defect detector forms part of the controller (page 972, 2nd col., 2nd and 3rd paragraphs; page 976, 1st col., 1st paragraph; figure 1).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

"The Signature Analysis of Sonic Bearing Vibrations", Braun, S., 1980 IEEE

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M. Le whose telephone number is (571) 272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Toan Le

January 18, 2006

BRYAN BUI
PRIMARY EXAMINER